

WORKING WITH MODEM7

by Buzz Rudow

It's always difficult to discuss modem interfaces, because there are so many variables. We have different computers, I/O boards, modems, and wordprocessors. However, since I had to get into it this month, with a couple of variations, I thought I'd document it. After all, last month I asked you Muggies to document what you've learned. Might as well follow my own request, and it may give you an idea of the kind of thing the newsletter can do. There surely are many more articles that can be written, doing perhaps the same thing I did, but with different wordprocessors, computers, and modems.

The first situation I had was with my own Vector 5005. I wanted to go to a printer at 9600 baud, to another computer (direct-connect) via a modem program at 9600 baud, and to a Hayes Smartmodem (1200/300) at 1200 baud. The second situation was for a friend who has a 3005, who thought that accessing a particular remote data base might be beneficial to his work.

To get either of these systems running, I needed to:

- 1) Understand the I/O board used, and be able to configure the I/O ports;
- 2) Make a cable that runs from the I/O board to the modem;
- 3) Understand and set the switches on the modem;
- 4) Configure the Modem-7 program to run under the CPU-I/O-modem hardware; and
- 5) Learn how to use Modem-7 to accomplish the given tasks.

This article is arranged in an order that follows the above list, with the exception on item 4. The editing, assembling, and overlaying of Modem-7 is left for next month's newsletter. The list is covered twice, however, once for each hardware configuration.

Hayes Smartmodem on a Vector 5005

I had a bit of a head start with the 5005. I had been running Modem-719 (from MUG CP/M Library Disk 1907) to do direct-connect files transfers to a California Computer Systems (CCS) 8" system. That's what we use to upload/download software from/to 8" and Micropolis/Vector Graphic. The system had been installed several years ago by a local CP/M hacker (for a price). I hadn't the slightest idea how it worked. But I did have a working system to examine to aid in the learning process.

I had previously been doing all the 9600 baud printer, 9600 baud direct-connect, 1200 baud modem work by using only one plug on the back of the 5005. That's because there was only one plug on the back. I'd just pull one cable off and push one of the other two on. If I was switching between the printer or the direct-connect, I didn't have to change the baud-rate selection switches (both work at 9600 baud). But when I went to the modem, I had to take the cover of the 5005 off, pull the I/O board, and change the selection. When I left the modem, I of course had to repeat the procedure in reverse. What I

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wanted to do was have each peripheral device permanently, and individually, plugged in.

--Vector 5005 Hardware--

The 5005 runs off a ZCB, which is a combination CPU, PROM/RAM, and I/O board. But the ZCB isn't used for I/O in the 5005. A Bitstreamer II is used. The port configuration is a bit weird.

The Bitstreamer II has three 16-pin sockets for serial output on the right-top of the board. The top one is Channel C, middle is Channel B, and bottom is Channel A. Normally, and it was in this case, the board is jumpered to have Channel C = ports 6&7, B= ports 4&5, and A= ports 2&3.

The first problem was to get from the Bitstreamer to the back panel of the 5005. I solved that OK. You can buy 16-pin header to 25-pin DB-25 female socket cables. Most all parts stores have them. Look through your computer magazines. I decided to make mine, so I purchased the parts. Just for the record, the Priority One part numbers are:

073MIDP16 IDC 16-PIN DIP PLUG
07IDC16GY 16-CON GREY RIBBON CABLE - 10 FT
073MID825S D-SUB CONN, 25 FEMALE

Priority One isn't the only mail order electronics firm that has the parts, of course. Surprisingly, at least to me, is the fact that many of you, for a variety of reasons, don't like to deal with Priority One. At any rate, if you make your own, look at a cable you've got installed to get the cable polarity proper. For those of you who don't have a cable, the 16-wire flat cable should come up from the 16-pin header, and go down the left side of the 25-pin connector.

Then I had to figure out what port the new cable addressed. Solved that, too. If you currently have a printer working on any of the ports, you can use it as a tool to see what port it's plug, and any other that you've wired up, are referenced to. Set the baud-rate switches to the same setting your printer is using. Press RESET on the front (or back) of your computer and get into Vector's monitor. Type "O xx 07". That's an OH, not a zero. Replace the xx with 04, 06, etc., until the printer beeps. Whatever number results in a beep is the low end of the 2/3 4/5 6/7 combination that the I/O board is set to. Once you find one plug's reference port, move the printer cable to another port and repeat the process.

--Vector 5005 to Hayes Smartmodem Cable--

One may not need all these wires, but here's one configuration that works.

End A:	Pin	1	2	3	5	6	7	20
		shield	blk	red	org	grn	blu	yellow
End B:		1	3	2	5	6	7	20

I used parts from Priority One again. The part numbers are:

07CNDDB25P 25-PIN MALE D SUB CONNECTOR
07PGRCC9x (where x=# of feet) 9-COND SHIELDED CABLE
07CNDP25H 25-PIN 2-PC GREY D SUB COVER

For anyone who's following alone, since I didn't need 3 of the 9 wires, I cut off the brown, white, and purple ones.

Once you have the cable fabricated, you don't need to worry about which end goes where. The cable is reversable.

--Hayes Smartmodem 1200--

There are some variations on how you might set up the Hayes switches. While we might address the variations in a future article, this arrangement works.

Switch settings, reading left to right, looking at the front:

1	2	3	4	5	6	7	8
down	up	down	up	down	down	up	down

You can test the modem by hooking up all the wires, and turning on the modem. The lights on the front panel are:

HS AA CED OH RD SD TR MR

The HS, TR, and MR LEDs should be lit. I realize I haven't told you how to prepare a "proper" version of Modem-7, yet. For the moment, just suppose you have one. Call up the proper version of Modem-7, and:

A:>>COMMAND: T
-- tap RETURN
-- the RD and SD LEDs blink

If they don't, something is wrong with your baud rate switch, or with your cabling, either from the Bitstreamer to the back of the box, or from the box to the modem.

-- type a cntr-E to get back to the command mode

A:>>COMMAND: CAL nnnnnnn (where nnnnnnn is a remote computer phone)

-- the RD and SD LEDs will blink
-- OH comes on solid
-- when the remote answers, CD comes on solid

Prentice Star on a Vector 3005

Since the remote data base system that my friend wanted to access had been designed for some specific hardware, my friend didn't want to spend a lot of

money on his installation. It might turn out that the system won't support a Vector, e.g., has incompatible direct cursor addressing, or unadjustable nulls at the end of lines, which is a problem for Vectors.

We decided to use a Prentice Star 300 baud acoustic modem that I had around. His 3005 uses only a ZCB for the I/O - no Bitstreamer. We wanted to have separate plugs for his printer, a Star Gemini 10 running serially at 9600 baud, and the modem at 300 baud. It's a lot harder to take the cover off the 3005 to change baud rates than it is on the 5005.

I fooled around for awhile trying to get an old Bitstreamer-I into his system. Then, because of my problems in getting it to work, and because I had figured out how the disk-saving mechanisms of Modem-7 worked, I decided that it wasn't that much of a job for him to switch cables. If I could change his baud rate by software, he wouldn't have to take the cover off the machine. He can always get an "A/B" switch and not change plugs. (Hope he agrees.) Maybe someday I'll figure out how to use the parallel port and switch the Gemini to it, leaving the serial just for the modem.

--Vector 3005 Hardware--

--Vector 3005 to Prentice Star Cable--

The cable is identical to that discussed in the "Vector 5005 to Hayes Smartmodem Cable" section, above. This cable is also reversable, and may not need all the wires.

--Setting the Baud Rates--

I went back to the February MUG newsletter (pages 6-8) to review how to switch baud rates without moving the baud-rate switch. As we wrote then, the Vector literature tells of a "divide by 4" function. The Intel literature also speaks of a "times 16" function. I had said I would check it out, but hadn't until now. In an amazingly easy session of work, I had my little Star PowerWriter (a 14 character/second, daisy-wheel printer on which this newsletter is produced), accepting data at 19,200 baud (approximately 1920 characters/second). While that may seem like a bit of an over-kill, the principle is great. I can now set the physical baud-rate switch on the ZCB to 1200, and then, by way of software, output to a printer (or another computer) at 19,200, to a modem or other device at 1200, or to a slow modem at 300.

In addition, I proved to myself that one stop-bit works just as well as two stop-bits. I therefore can also set up any serial transmission to take place 10% faster than that accomplished after the normal Vector initialization.

The program to initialize the ZCB I/O to the various baud rates is shown below. It is a Basic/z program, and is available on MUG Library Disk 1913, in both source and executable forms. It will set baud rates to the ZCB switch setting (MEDIUM), or to faster or slower rates, as shown in the table which follows the program listing.

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As shown, it works only on Ports 4/5. Set the variable P1% to any other port which you wish to initialize. Executable versions of the program for Vector ports 6/7 and 8/9 are also on the Library Disk.

Program SETBAUD5

```

10 DIM DATAIN%(5)
15 UPCASE
20 FOR I%=0 TO 5
25   READ DATAIN%(I%)
26   NEXT I%
27 P1%=5
30 FORMFEED
31 PRINT "BAUD I/O INITIALIZATION ROUTINE"
32 PRINT
33 PRINT "1 - FAST (printer at 19,200 baud)"
40 PRINT "2 - MEDIUM (printer or modem"
50 PRINT "      at 1200 baud)"
60 PRINT "3 - SLOW (modem at 300 baud)"
70 PRINT
80 PRINT "Enter Selection Desired: ";
81 INPUT R1$
80 WHEN R1$<"1" OR R1$>"3"
90   PRINT "Entry must be between '1' and '3'!"
100  PRINT "Press any key to clear error."
110  INPUT R1$
120  GOTO 30
130  WHENEND
140 IF R1$="3" THEN DATAIN%(4)=79
150 IF R1$="2" THEN DATAIN%(4)=78
160 IF R1$="1" THEN DATAIN%(4)=77
170 FOR I%=0 TO 5
171   OUT(P1%)=DATAIN%(I%)
172   NEXT I%
180 END
190 DATA 0,0,0,64,0,39

```

Baud Rate Values Available

Baud Rate Switch	"FAST"	"MEDIUM"	"SLOW"
9600	153600	9600	2400
4800	76800	4800	1200
2400	38400	2400	600
1200	19200	1200	300
600	9600	600	150
300	3800	300	75
150	2400	150	37.5

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Accessing a Remote Data Base With The Hayes Smartmodem 1200

A>M462H

MDM719 - (type M for Menu)

Vector Graphics Port 4, 6Mz, 1200b, Hayes

A>>COMMAND: T TEXT.SAV (see note 1)

** Memory buffer available **

cntl-Y (see note 2)

** Memory buffer open **

;cntl-E

** File still open, use DEL, DIR, WRT, E, L or T **

16384 Bytes of buffer free

A>>COMMAND: CAL 539-2281 (see note 3)

ATDT 539-2281 - try #1

CONNECTED - hit any key to stop the bell

<cr>

(in Terminal Mode now)

;ENET

;I5C

;ERMINAL=A4 (see note 4)

;

;@C nnnnnn (see note 5)

;

;nnn nnn CONNECTED

;

;PLEASE ENTER SUBSCRIBERID;PASSWORD

cntl-P (see note 6)

Printer Buffer is on

cntl-P

Printer Buffer is off

at end got a @

cntl-E (see note 7)

** File is still open, use DEL, DIR, WRT, E, L or T **

10576 Bytes of buffer free

A:>>COMMAND: WRT (see note 8)

A:>>COMMAND: DSC

A:>>COMMAND: CPM

General Note: All text that is underlined is operator response. All other text is program prompt.

Note 1 - You need to open a file if you wish to save a copy of the dialog. If you are running Memorite, name the file with a ".MEM" suffix, if you wish to read the file into Memorite. If you don't want to save the dialog, you don't need to do the "T" step. Go right to the "CAL" command.

Note 2 - If you have opened a file for saving the dialog, nothing is saved until you type a cntl-Y. You can toggle back and forth between saves of data being displayed by alternately typing cntl-Y to start, cntl-x to stop. Once the save-buffer is open, go back to the command level by typing a cntl-E.

Note 3 - This example dials the phone number specified. You can also just type CAL and you'll get the Directory Menu, from which you can dial by specifying a single character.

Note 4 - As has been noted before, the Vector has problem with handling screen display when running at 1200 baud. Some systems, such as the Telenet system I was using, allow the specification of terminal-type. Essentially, you're asking the system to put out a sequence of nulls after a carriage-return/line-feed. CP/M bulletin boards usually ask whether you want any nulls. You do, if you're running at 1200 baud or higher. Experiment and see how many you need. Since the Vector usually drops 4 or 5 characters, try asking for 5 or 6 nulls.

Note 5 - Telenet now wants to know what service you desire. I was running an Airline Guide service and answered the "@C" prompt with a number that service supplied. The Source is accessed the same way, but a different number is entered at this point.

Note 6 - The cntl-P causes all data going to the screen to also be printed on your printer. You can lose data if you do this in the middle of transmission from the remote computer. Send the control-P when remote is waiting for input from you. The disk-saving routine continues to work when the print buffer is on. Issue a second cntl-P to turn off the print buffer. Repeat the toggling on/off, as required.

Note 7 - When you exit the service that Telenet is providing, the "@" prompt returns. Since you've still got a few things to do, you need to get back to the Modem-7 command mode. Do so by issuing the cntl-E.

Note 8 - The memory buffer is still open, if you selected the option of saving

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the dialog. You must issue the WRT command here to write the data to the specified disk file. The DSC command will disconnect the phone line, and the CPM command gets you out of Modem-7 and back into CP/M.

Accessing a Remote Data Base With the Prentice Acoustic Modem

The primary differences between the Prentice and the Hayes are 300 baud versus 1200 baud, and manual dialing versus automated dialing. All the Notes in the Hayes section of the article, except #3 and 4, still apply.

A>M443H

MDM719 etc

A>>COMMAND: T TEXT.SAV

** Memory buffer available ***

cntl-Y

** Memory buffer open **

;

--- MANUALLY DIAL NUMBER DESIRED.

--- WHEN COMPUTER ANSWERS, AND TONE IS HEARD,

--- PLACE PHONE IN ACOUSTIC CUPS.

--- TAP THE RETURN KEY TWICE. IF REMOTE COMPUTER DOESN'T ANSWER, TAP THE

--- RETURN KEY TWICE AGAIN. REPEAT UNTIL SOMETHING SHOWS ON THE SCREEN.

--- got into TELENET

--- You can just tap the RETURN key when asked for a terminal type. The 300

--- baud transmission rate is slow enough for the Vector screen processing.

--- at end got a @

cntl-E

A:>>COMMAND: WRT

A:>>COMMAND: DSC

A:>>COMMAND: CPM

Conclusion

If you readers have comments, suggestions, corrections, etc., please call or send me a note. I'll continue as far as I can go, but I have limited equipment availability, limited knowledge, and limited time to research all the possible interesting aspects of this subject.

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VECTOR GRAPHIC FILES FOR CHAPTER 11 PROTECTION

by Jenny McCune
(Reprinted from the 12/23/85 Computer Systems News)

Vector Graphic Inc., with \$1.9 million in assets and a \$4.3 million debt hanging over it, last week filed for Chapter 11 protection from its creditors.

The company also announced the resignation, effective Dec. 31, of Michael Sutherland as president and chief executive.

Sutherland had held the Vector presidency for only four months. Previously he had spent approximately eight months as engineering vice-president for Corona Data Systems Inc., and prior to that he worked in a similar capacity for Vector.

Vector, another probable victim of the soured microcomputer market, had been looking for a merger partner for some time to help lighten its financial burdens. Although it signed a letter of intent with Dual Systems Control Corp., Berkley, Calif., last April, the merger had been held up because of Vector's tardiness in meeting certain conditions set by Dual.

In a prepared statement, Vector said that despite the Chapter 11 filing, it will pursue merger discussions with Dual and other unidentified merger candidates. However, it remains unclear what chances the company has to find a merger partner now that it has filed for bankruptcy.

Both Vector and Dual were closed for the Christmas holidays, and their executives were unavailable for comment.

The financial health of Vector, a marketer of multiuser microcomputers, has been declining for two years. The company lost \$9.2 million for the 1985 fiscal year ended in June. Revenue dropped 66 percent in 1985, to \$5.1 million from \$15.2 million in 1984. Vector also reported a 1984 loss of \$7.6 million.

The company, although hard-hit by the slump shaking the rest of the industry, was particularly vulnerable because of its management turnover and its failure to adopt the IBM industry standard quickly enough, said industry observers. Vector has experienced periods of large operating losses, layoffs and management shakeups since 1983.

A merger was thought to be the solution for the variety of ills suffered by Vector. Dual had been interested in Vector as a way to enlarge its dealer base and expand its product line beyond its current market for scientific and engineering applications and into business data processing.

At the time Vector inked the Dual merger deal, it said it had reached an agreement with its secured creditors to exchange debt for stock in the new company after the merger was completed. Vector had been negotiating a similar deal with unsecured creditors.

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COMMENTS ON VECTOR'S CHAPTER 11 FILING

by Buzz Rudow

While one's initial reaction to Vector Graphic's filing for Chapter 11 protection is "they're down the tubes", it isn't necessarily so. As pointed out in the Vector Graphic Users' Group Midwest Newsletter 10 (1/5/86), "this is not a dissolution, but rather a mechanism which allows a company some breathing room while a plan for reorganization is being developed." That newsletter further states that "while some people may perceive chapter 11 proceedings as a problem, others will recognize it as an advantage since it may provide an even more attractive situation for mergers than existed before."

Al Brandli also says that his company's interaction with Vector during January has been positive, friendly, with business as usual. At this point, Vector is certainly still in business. We wish them the best.

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MICROPOLIS 1015 DRIVES

A couple months ago, Lynn mentioned that DAMAN has a supply of 1015 drives that we obtained from Vector. These drives plug right into a Vector Graphic System B (or MZ), and are the basis of all Micropolis marketed sub-systems. If you're currently running Micropolis drives, we're pretty sure we can produce a version of the product to suit your requirements. If you aren't sure of your requirements, call Lynn. She knows the questions to ask to be able to tell you how the product applies to your situation. Drives can be used as replacements, or as add-ons that can be configured to give you a system that accesses up to four drives online at the same time.

The drives we obtained came in a variety of states, from brand new to returns from the field. We test each drive against the Diagnostics program, copy files to and from them, and load and execute files off them. We're sure they work when they leave here. To make sure that you're satisfied that they work with your system, DAMAN offers the 30-day unconditional guarantee. Try them out. If you don't like them, return them for your money back, less shipping.

The prices for these drives are:

1015 BARE DRIVE \$150
(no power supply or cabinet, as in Vector Graphic System B)

SINGLE-DRIVE SUBSYSTEM \$225
(single 1015 installed in cabinet with power supply)

DOUBLE-DRIVE SUBSYSTEM \$250
(two 1015 drives installed in cabinet with power supply)

INTERCONNECTING DATA CABLES . . Depend on Setup

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CP/M SOFTWARE INVENTORY CLEARANCE SALE

DAMAN has the following software on the shelves that we'd like to remove. We are re-thinking our whole sales approach to software sales, and these products don't fit into the new position. That doesn't mean that the products are not valuable; only that we don't wish to stock them, or take the time to understand and support them. In the future, DAMAN will supply games, accounting, etc. software on the Micropolis/Vector Graphic format, only when ordered with the proviso that the buyer already knows what he wants. The following prices are cash, check or money order. Prices are also limited to inventory in stock, in either the M/VG 5 1/4" or 8" format. VISA/Mastercard accepted at 3% additional charge.

Games

ORBQUEST [40]	\$20
MILLIONAIRE [70]	\$30
ZORK I [50]	\$29
ZORK II [50]	\$29
ZORK III [50]	\$29
ANALIZA II [50]	\$29
DEADLINE [60]	\$35
STARCROSS [50]	\$29
SUSPENDED [60]	\$35
WITNESS [60]	\$35
MORTON'S FORK (MDOS) [40]	\$20
BALROG (MDOS) [40]	\$20

Utilities

SID/ZSID [100]	\$70
COMPRESS	\$25
DISK EDIT [100]	\$35
DIAGNOSTICS [125]	\$50
CACHE/Q [225]	\$135
MOVE-IT [125]	\$60

Business Applications

DAY MASTER (calendar maint.) [200]	\$50
SUPERCALC I (spreadsheet) [195]	\$.127
TOTAL ACCT PARTNER [395]	\$200
OPTIMIZER [200]	\$70
INFO-STAR (Data Base Mgr) [495]	\$250
WORD-STAR (wordprocessor) [350]	\$210
CALC-STAR (spreadsheet) [195]	\$110

Languages

CBASIC [150]	\$90
TINY PASCAL [85]	\$40
ADA [300]	\$.120

Utilities

ACTIVE TRACE [125]	\$50
UTILITIES I [60]	\$25
UTILITIES II [60]	\$25
VEDIT [140]	\$90
MICRO-LINK [99]	\$40

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CP/M SOFTWARE SALE

The following software is also on our shelves, but it doesn't bother us quite as much for it to be there. We use, or would like to use, these products. Therefore we'll continue to stock them, market them, and support them. Prices are good through February 28.

POWER [170]	\$.110	SPELLBINDER (wordprocessor) [495]	\$.300
CATALOG [75]	\$60	BDS-C [150]	\$.130
TURBO PASCAL [70]	\$60	TURBO TOOLBOX [55]	\$50
TURBO TUTOR [35]	\$30	MITE [165]	\$.156
MINI-LEDGER [150]	\$.130	SUPER CALC II [295]	\$.228
10 16-SECTOR SSDD DISKS	\$31	10 16-SECTOR DDDD DISKS	\$41

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CLASSIFIED

FOR SALE - Vector Graphic MZ system plus 1053-2 external storage module (total of four drives). Beautiful condition. Includes Manuals, software, etc. \$650. I pay shipping cost. Write or call for detailed description and photo.

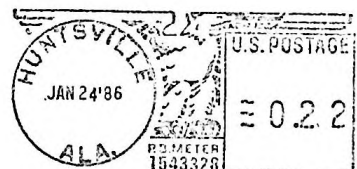
Sheldon Gates, Box 11547, Phoenix AZ 85060 (602) 840-4963.
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WANTED - Vector 3005. Also need Metafile software for same.

David R. Babb, P.O. Box 69, Belvidere IL 61008 (815) 544-2720.
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* For Assistance with general information, MUG/Vector Graphic, DAMAN hardware *
* & software, Micropolis Basic, Basic/z, Micropolis drives & Micropolis parts-*
* *
* Call Lynn at (205)881-1697 during the Central Times of 9 AM to 5 PM. Buzz *
* is sometimes around in the evening (Lynn will know) and from 9 - 12 on Sat. *

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